

IN THE SPECIFICATION:

At paragraph 0020:

During operation, working fluid 70 is channeled to intercooler 50 at a temperature that enables condensate to form in the air-side of intercooler 50. The condensate is then channeled from intercooler 50 and through drain valve 52 to holding tank 54. Pump 56 then channels the condensate from holding tank 54, through demineralizer 58, and into demineralizer condensate tank 60. In the exemplary embodiment, demineralizer 58 is at least one of a reverse osmosis apparatus and a ion-exchange apparatus that is configured to facilitate removing trace elements from the condensation. Pump 62 then channels the demineralized condensate through injection system 80 at a predetermined rate and a temperature known in the art as a KO flow back into cycle temperature, as shown in Figures 2 and 3. The condensate exiting injection system 80 is atomized by injectors 84 and is discharged into high pressure compressor 16 as a fine mist. The mist facilitates reducing an operating temperature of the airflow within gas turbine engine 10, thus creating an intercooling effect that enables the air exiting high pressure compressor 16 to have an increased work capacity. Because a temperature of air 55 entering high pressure compressor 16 is reduced, less work is required for high pressure compressor 16.

At paragraph 0023:

Cooling system 100 includes a condensate injection system 80 coupled in flow communication with pump 62. Condensate injection system 80 includes a piping manifold 82 and a plurality of injectors 84 coupled to piping manifold 82. Piping manifold 82 is attached to gas turbine 10 and receives condensate from pump 62. In the exemplary embodiment, piping manifold 82 is annular and extends circumferentially around high pressure compressor 16 and low pressure compressor 14 to facilitate supplying a substantially consistent flow of condensate between pump 62 and injectors 84. Spray injectors 84 extend

radially inward towards gas turbine centerline axis 43 and are configured to discharge condensate from spray injectors 84 in a fine mist towards low pressure compressor 14. In one embodiment, condensate droplets exit injectors 84 with a mean diameter size of approximately twenty microns.